Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Review of the Commission's Rules Governing the 896-901/935-940 MHz Band	)	WT Docket No. 17-200
	)	

COMMENTS OF MOTOROLA SOLUTIONS, INC.

Motorola Solutions, Inc. ("Motorola Solutions" or "MSI") hereby files these comments in response to the Notice of Proposed Rulemaking that proposes facilitating broadband deployment in the 896-901/935-940 MHz band (900 MHz band) currently configured for narrowband operations.[1] MSI is a global leader in mission-critical communications. Our technology platforms in communications, software, video and services make cities safer and help communities and businesses thrive.

Motorola Solutions supports the Commission's effort to allocate additional spectrum available for private broadband networks Business/Industrial/Land Transportation ("B/ILT").[2] However, MSI maintains that the Commission must preserve the rights of incumbent narrowband systems and enable such networks to operate without increased potential for

[1] *In the Matter of Review of the Commission's Rules Governing the 896-901/935-940 MHz Band, Notice of Proposed Rulemaking, WT Docket No. 17-200,* 84 Fed. Reg. 12987 (2019*), ("NPRM" or "Notice").*

[2] Indeed, MSI was a strong supporter and an active participant in the Commission's proceedings to make spectrum available for advanced broadband networks in the 3.5 GHz band that could be used for enterprise applications. To that end, MSI has recently announced MOTOTRBO Nitro, an enterprise voice and private broadband data managed service to provide private broadband land mobile services using Citizens Broadband Radio Service spectrum.

interference. Motorola Solutions supports the Commission's preferred plan to transition to a new band alignment through a market-driven voluntary exchange process.

I. BACKGROUND.

The 900 MHz band is comprised of 399 channel pairs[3] that are based on a standardized narrowband channel bandwidth of 12.5 kHz[4] designated for narrowband private land mobile radio communications ("PLMR"). The available channels are divided nearly evenly between the Specialized Mobile Radio ("SMR") pool (200 channel pairs) and the B/ILT pool (199 channel pairs).[5]

The Commission proposes to realign the 900 MHz band to create a broadband segment (897.5-900.5 MHz / 936.5-939.5 MHz) and a segment (896-897.5/935-936.5 MHz and 900.5-901/939.5-940 MHz) for continued narrowband operations.[6] Further, the newly designated narrowband segment would no longer have a distinction between B/ILT and SMR blocks; rather, they would be designated as the narrowband segment available for site-based operations.[7]

The Commission proposes a market-driven voluntary exchange process that will rely on voluntary mechanisms for realigning the 900 MHz band including the clearing of incumbent licenses.[8] Further, in defining the incumbents that the prospective broadband licensee must relocate or protect, the Commission seeks to protect incumbents from potential interference that

---

3 47 C.F.R. § 90.613.

4 47 C.F.R. § 90.209.

5 47 C.F.R. § 90.617.

6 *Notice* at ¶ 15.

7 *Id.* at ¶ 19.

8 *Id.* at ¶ 25.

might result from the prospective broadband licensee's co-channel operations, as well as ensure the prospective broadband licensee's ability to make unencumbered use of its license.[9]

II. COMMENTS.

Motorola Solutions has consistently stated that in considering whether to enable broadband service in the 900 MHz band, "the rights of incumbent licensees must be preserved."[10] Motorola Solutions further amplified on that overarching view by stating:[11]

> [t]he key to the successful implementation of the EWA/PDV broadband concept is to ensure that the rights of incumbent narrowband licensees are fully protected. This means that narrowband licensees should not be subject to diminished performance, coverage, or capacity in order to accommodate new broadband deployment. Further, all incumbent costs for any frequency relocation or system modification should be fully funded by the PEBB licensee. This obligation should include responsibility for full life-cycle equipment replacement costs and any additional costs for maintenance and infrastructure – including new transmitting sites – that may be needed to ensure that the narrowband incumbents are made whole.

Motorola Solutions reiterates that many critical infrastructure systems rely on narrowband voice communications in the band, and must be protected. Motorola Solutions supports the Commission's proposed separation of the 3/3 MHz broadband segment and the narrowband segments as a mechanism to reduce potential interference.

As there may be multiple B/ILT entities within a single county, Motorola Solutions supports a 900 MHz broadband licensing structure incorporating geographic licensing areas that are no larger than county size. Census tract license sizes would also be appropriate as this could reduce the number of incumbent users that would need to relocate prior to deploying a broadband system.

---

9 *Id.* at ¶ 70.

10 *See* Comments of Motorola Solutions, RM-11738, submitted January 12, 2015, at 4.

11 *See* Further Comments of Motorola Solutions, RM-11738, submitted June 29, 2015, at 2.

In terms of interference protection for narrowband systems in the band, Motorola Solutions recommends that the power flux density (PFD) around broadband base stations not exceed a PFD of 1000 microwatts/m^2 over at least 98% of the area within 1 km of the base or repeater station antenna, at 1.6 meters above ground level (regardless of transmission bandwidth). In proposing this PFD level, we note that narrowband receivers will not typically be able to rely on any front-end receiver selectivity (*e.g.*, band select filtering) for the in-band interfering broadband signal, and expect that the broadband transmitters will typically be high sites in order to maximize service area coverage, ensuring that the power flux density specification can readily be met.[12]

Similarly, Motorola Solutions proposes that the conducted broadband transmitter out-of-band emissions (OOBE) limits be no greater than -23 dBm/MHz in the band immediately adjacent to the broadband allocation. This level will reduce the impact of broadband splatter into the adjacent narrowband channels. This level should be kept low since there is essentially very little guard band between the broadband and narrowband allocations.

Regarding the transition, Motorola Solutions fully supports the Commission's proposed market-driven approach where 900 MHz site-based incumbents have the opportunity to relocate on a 100% voluntary basis and are not mandated to relocate. Further, Motorola Solutions strongly disagrees with the Commission's alternative approaches of either an auction of overlay licenses or an incentive auction. Incumbents should not be mandated to relocate nor be expected to incur any relocation costs. Motorola Solutions supports the Commission proposal that

[12] In addition, we expect the use of high gain base station antennas, with a correspondingly narrow elevation pattern, in order to maximize broadband system coverage areas (*e.g.*, for IoT applications). This will further reduce the PFD near base sites.

prospective broadband licensees need to account for all covered incumbents in the Transition Plan, by agreement to relocate covered incumbents from the broadband segment, or protection of covered incumbents through minimum spacing criteria, or new letters of concurrence agreeing to lesser separation distances.

III. CONCLUSION.

Motorola Solutions is a strong supporter of innovations that improve communications options for private broadband networks and B/ILT users. However, MSI maintains that the Commission must preserve the rights of incumbent narrowband systems and enable such networks to operate without increased potential for interference. Motorola Solutions also supports the Commission's plan to transition to a new band alignment only through a market-driven voluntary exchange process.

Respectfully Submitted,

/s/ Frank Korinek
Frank Korinek
Director of Government Affairs
Spectrum and Regulatory Policy
Motorola Solutions, Inc.
1455 Pennsylvania Avenue, N.W.
Washington, DC 20004
(202) 371-6900

June 3, 2019